

09562360  
"09562360"  
09562360

ATGAGAACATTAAAAACCTCATAACTGTTGTGGCCTTTAGTATTTTTTGGGTACTGTTGATTTACGTCAAT	72
GTTTATCTCTTTGGTGCTAAAGGAAGCTTGTCAATTTATGGCTTTTGTCTGATAGCTTACCTATTAGTCAAA	144
ATGTCCTTATCCTTTTTTTTACAAGCCATTTAAGGGAAGGGCTGGGCAATATAAGGTTGCAGCCATTATTCCC	216
TCTTATAACGAAGATGCTGAGTCATTGCTAGAGACCTTAAAAAGTGTTTCAGCAGCAAACCTATCCCCTAGCA	288
GAAATTTATGTTGTTGACGATGGAAGTGCTGATGAGACAGGTATTAAGCGCATTGAAGACTATGTGCGTGAC	360
ACTGGTGACCTATCAAGCAATGTCATTGTTTCATCGGTCAGAGAAAAATCAAGGAAAGCGTCATGCACAGGCC	432
TGGGCCTTTGAAAGATCAGACGCTGATGTCTTTTTGACCGTTGACTCAGATACTTATATCTACCCTGATGCT	504
TTAGAGGAGTTGTTAAAAACCTTTAATGACCCAACCTGTTTTTGTCTGCGACGGGTCACCTTAATGTCAGAAAT	576
AGACAAACCAATCTCTTAACACGCTTGACAGATATTCGCTATGATAATGCTTTTGGCGTTGAACGAGCTGCC	648
CAATCCGTTACAGGTAATATCCTTGTTTGCTCAGGTCCGCTTAGCGTTTACAGACGCGAGGTGGTTGTTCCCT	720
AACATAGATAGATACATCAACCAGACCTTCCTGGGTATTCCTGTAAGTATTGGTGATGACAGGTGCTTGACC	792
AACATGCAACTGATTTAGGAAAGACTGTTTATCAATCCACTGCTAAATGTATTACAGATGTTCCCTGACAAG	864
ATGTCTACTTACTTGAAGCAGCAAAACCGCTGGAACAAGTCCTTCTTTAGAGAGTCCATTATTTCTGTTAAG	936
AAAATCATGAACAATCCTTTTGTAGCCCTATGGACCATACTTGAGGTGTCTATGTTTATGATGCTTGTTTAT	1008
TCTGTGGTGGATTTCTTTGTAGGCAATGTCAGAGAATTTGATTGGCTCAGGGTTTTAGCCTTTCTGGTGATT	1080
ATCTTCATTGTTGCCCTGTGTCGGAACATTCATTACATGCTTAAGCACCCGCTGTCCTTCTTGTTATCTCCG	1152
TTTTATGGGGTGCTGCATTTGTTTGTCCTACAGCCCTTGAAATTATATTCTCTTTTTACTATTAGAAATGCT	1224
GACTGGGGAACACGTAAAAAATTATTATAA	1254

SEQUENCE ID NO. 1

FOREFORD 5562860

M R T L K N	<u>L I T V V A F S I F W V L L I Y V</u>	N	24
V Y L F G A K G S L S	<u>I Y G F L L I A Y L L V</u>	<del>R</del>	48
<del>M S L S F F Y K</del>	P F K G R A G Q Y K V A A I I P		72
S Y N E D A E S L L E T L K S V Q Q Q T Y P L A			96
E I Y V V D D G S A D E T G I K R I E D Y V R D			120
T G D L S S N V I V H R S E K N Q G K R H A Q A			144
W A F E R S D A D V F L T V D S D T Y I Y P D A			168
L E E L L K T F N D P T V F A A T G H L N V R N			192
R Q T N L L T R L T D I R Y D N A F G V E R A A			216
Q S V T G N I L V C S G P L S V Y R R E V V V P			240
N I D R Y I N Q T F L G I P V S I G D D R C L T			264
N Y A T D L G	<del>K T V Y Q S T A K</del>	C I T D V P D K	288
M S T Y L K Q Q N R W N K S F F R E S I I S V K			312
K I M N N P F	<u>V A L W T I L E V S M F M M L V Y</u>		336
<u>S V V D F F V G N V R E F D</u>	<u>W L R V L A F L V I</u>		360
<u>I F I V A L C</u>	R N I H Y M L K H P L S	<u>F L L S P</u>	384
<u>F Y G V L H L F V L Q P L</u>	<del>K L Y S L F T I R</del>	N A	408
D W G T R K K L L *			417

SEQUENCE ID NO. 2

SEQUENCE ID NO. 3

5'-GCTGATGAGACAGGTATTAAGC

primer: sel (sense, nucleotides G<sup>316</sup> - C<sup>337</sup>)

SEQUENCE ID NO. 4

5'-ATCAAAATTCTCTGACATTGC

primer: se2 (antisense, for sense nucleotides G<sup>1031</sup> - T<sup>1050</sup>)

SEQUENCE ID NO. 5

5'-GACTCAGATACTTATATCTA

primer: sesp1 (sense, for nucleotides G<sup>475</sup> - A<sup>494</sup>)

SEQUENCE ID NO. 6

5'-TTTTTACGTGTTCCCCA

primer: sesp2 (antisense, for sense nucleotides T<sup>1228</sup> - A<sup>1244</sup>)

098799-061301  
F0ET90-69652850

TOPTON - 2300

567

# Nucleotide Sequence of A98R gene in the PBCV-1 Virus Genome

Start: ATG 50901 Stop: TGA 52607

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50881 aagacttctt gaaagttaca ATGggtaaaa atataatcat aatggtttcg tggtaacca
50941 tcataacttc aaatctaate gcggttggag gagcctctct aatcttggct ccggcaatta
51001 ctgggtatgt tctacattgg aatattgctc tctcgacaat ctggggagta tcagcttatg
51061 gtattttcgt ttttgggttt ttccttgcac aagttttatt ttcagaactg aacaggaaac
51121 gtcttcgcaa gtggatttct ctcagaccta aggggttgaa tgatgttcgt ttggctgtga
51181 tcattgctgg atatcgcgag gatccttata tgttccagaa gtgcctcgag tctgtacgtg
51241 actctgatta tggcaacggt gcccgctctga tttgtgtgat tgacggtgat gaggacgatg
51301 atatgaggat ggctgccgtt tacaaggcga tctacaatga taatatcaag aagcccagat
51361 ttgttctgtg tgagtcagac gacaaggaag gtgaacgcat cgactctgat ttctctcgcg
51421 acatttgtgt cctccagcct catcgttgaa aacgggagtg tctttatact gggtttcaac
51481 ttgcaaagat ggaccccagt gtcaatgctg tcgttctgat tgacagcgat accgttctcg
51541 agaaggatgc tattctggaa gttgtatacc cacttgcatg cgatcccagag atccaagccg
51601 ttgcaggtga gtgtaagatt tggaaacacag acactctttt gactcttctc gtcgcttggc
51661 ggtactattc tgcgttttgt gtggagagga gtgcccagtc ttttttcagg actgttcagt
51721 gcgttggggg gccactgggt gcctacaaga ttgatatcat taaggagatt aaggaccctt
51781 ggatttccca gcgctttctt ggtcagaagt gtacttacgg tgacgaccgc cggctaacca
51841 acgagatctt gatgcgtggt aaaaagggtg tgttactctc atttgctgtt ggttggctctg
51901 acagtccgac caatgtgttt cgggtacatcg ttcagcagac ccgctggagt aagtcgtggt
51961 gccgcgaaat ttggtacacc ctcttcgccg cgtggaagca cggtttgtct ggaatttggc
52021 tggcctttga atgtttgtat caaattacat acttcttctt cgtgatttac ctcttttctc
52081 gcctagccgt tgaggccgac cctcgcgccc agacagccac ggtgattgtg agcaccacgg
52141 ttgcattgat taagtgtggg tatttttcat tccgagccaa ggatattcgg gcgttttact
52201 ttgtgcttta tacatttgtt tactttttct gtatgattcc ggccaggatt actgcaatga
52261 tgacgctttg ggacattggc tgggatactc gcggtggaaa cgagaagcct tccgttggca
52321 cccgggtcgc tctgtgggca aagcaatata tcattgcata tatgtggtgg gccgcggttg
52381 ttggcgctgg agtttacagc atcgtccata actggatggt cgattggaat tctctttctt
52441 atcgttttgc tttggttggg atttgttctt acattgtttt tattgttatt gtgctggtgg
52501 tttatttcac cggcaaaatt acgacttgga atttcacgaa gcttcagaag gagctaatacg
52561 aggatcgcgt tctgtacgat gcaactacca atgctcagtc tgtgTGAttt ttcttgcaag

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098999.054301

Nucleotide and Protein Sequence of *Pasteurella multocida*

+10

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1      M N T L S Q A I K A Y N S N D Y Q
-18  ATTTTTTAAGGACAGAAAATGAATACATTATCACAAGCAATAAAAGCATATAACAGCAATGACTATCAA

18    L A L K L F E K S A E I Y G R K I V E F Q I T
52    TTAGCACTCAAATTATTTGAAAAGTCGGCGGAAATCTATGGACGGAAAATTGTTGAATTTCAAATTACC

41    K C Q E K L S A H P S V N S A H L S V N K E E
121   AAATGCCAAGAAAACTCTCAGCACATCCTTCTGTTAATTCAGCACATCTTTCTGTAAATAAAGAAGAA

64    K V N V C D S P L D I A T Q L L L S N V K K L
190   AAAGTCAATGTTTGCATAGTCCGTTAGATATTGCAACACAACGTGTTACTTTCCAACGTAAAAAATTA

87    V L S D S E K N T L K N K W K L I T E K K S E
259   GTACTTTCTGACTCGGAAAAAACACGTTAAAAAATAAATGGAAATTGCTCACTGAGAAGAAATCTGAA

110   N A E V R A V A L V P K D F P K D L V L A P L
328   AATGCGGAGGTAAGAGCGGTGCGCCTTGTACCAAAGATTTTCCCAAAGATCTGGTTTTAGCGCCTTTA

133   P D H V N D F T W Y K K R K K R L G I K P E H
397   CCTGATCATGTTAATGATTTTACATGGTACAAAAGCGAAAGAAAAGACTTGGCATAAACCTGAACAT

156   Q H V G L S I I V T T F N R P A I L S I T L A
466   CAACATGTTGGTCTTTCTATTATCGTTACAACATTCAATCGACCAGCAATTTTATCGATTACATTAGCC

179   C L V N Q K T H Y P F E V I V T D D G S Q E D
535   TGTTTAGTAAACCAAAAACACATTACCCGTTTGAAGTTATCGTGACAGATGATGGTAGTCAGGAAGAT

202   L S P I I R Q Y E N K L D I R Y V R Q K D N G
604   CTATCACCGATCATTGCGCAATATGAAAATAAATTGGATATTGCTACGTCAGACAAAAGATAACGGT

225   F Q A S A A R N M G L R L A K Y D F I G L L D
673   TTTCAAGCCAGTGCCGCTCGGAATATGGGATTACGCTTAGCAAAATATGACTTTATTGGCTTACTCGAC

248   C D M A P N P L W V H S Y V A E L L E D D D L
742   TGTGATATGGCGCCAAATCCATTATGGGTTTCTTATGTTGCAGAGCTATTAGAAGATGATGATTTA

271   T I I G P R K Y I D T Q H I D P K D F L N N A
811   ACAATCATTGGTCCAAGAAAATACATCGATACACAACATATTGACCCAAAAGACTTCTTAAATAACGCG

294   S L L E S L P E V K T N N S V A A K G E G T V
880   AGTTTGCTTGAATCATTACCAGAAGTGAAAACCAATAATAGTGTTGCCGCAAAGGGGAAGGAACAGTT

317   S L D W R L E Q F E K T E N L R L S D S P F R
949   TCTCTGGATTGGCGCTTAGAACAATTCGAAAAACAGAAAATCTCCGCTTATCCGATTGCGCTTTCCGT

340   F F A A G N V A F A K K W L N K S G F F D E E
1018  TTTTTTGCGGCGGTAATGTTGCTTTCGCTAAAAAATGGCTAAATAAATCCGGTTTCTTTGATGAGGAA

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777 I S Y Y T S N R L I K T E A H L S N I N K L S  
 2329 ATCTCATATTACACGAGTAATAGATTAATAAAACTGAGGCGCATTTAAGTAATATTAATAAATTAAGT  
  
 800 Q L N L N C E Y I I F D N H D S L F V K N D S  
 2398 CAGTTAAATCTAAATTGTGAATACATCATTTTTGATAATCATGACAGCCTATTCGTTAAAAATGACAGC  
  
 823 Y A Y M K K Y D V G M N F S A L T H D W I E K  
 2467 TATGCTTATATGAAAAAATATGATGTCGGCATGAATTTCTCAGCATTAAACACATGATTGGATCGAGAAA  
  
 846 I N A H P P F K K L I K T Y F N D N D L K S M  
 2536 ATCAATGCGCATCCACCATTATAAAAGCTCATTAAACTTATTTTAATGACAATGACTTAAAAAGTATG  
  
 869 N V K G A S Q G M F M T Y A L A H E L L T I I  
 2605 AATGTGAAAGGGGCATCACAAGGTATGTTTATGACGTATGCGCTAGCGCATGAGCTTCTGACGATTATT  
  
 892 K E V I T S C Q S I D S V P E Y N T E D I W F  
 2674 AAAGAAGTCATCACATCTTGCCAGTCAATTGATAGTGTGCCAGAATATAACACTGAGGATATTTGGTTC  
  
 915 Q F A L L I L E K K T G H V F N K T S T L T Y  
 2743 CAATTTGCACTTTTAATCTTAGAAAAGAAAACCGGCCATGTATTTAATAAAACATCGACCCTGACTTAT  
  
 938 M P W E R K L Q W T N E Q I E S A K R G E N I  
 2812 ATGCCTTGGAACGAAAATTACAATGGACAAATGAACAAATTGAAAGTGCAAAAAGAGGAGAAAATATA  
  
 961 P V N K F I I N S I T L \*  
 2881 CCTGTAAACAAGTTCATTATTAATAGTATAACTCTATAA